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Epidemiology Of Paediatric Orthopaedic Trauma Presenting Over A Five Year Period Via Emergency Trauma Calls To A Level 1 Trauma Centre In An Urban Children'S Hospital

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Introduction: The World Health Organisation predict that childhood trauma will be the number one disease globally by 2020 and advocate injury surveillance as one method to reduce the burden of injury. This study provides the basis for further work in paediatric trauma surveillance and informs the development of educational, prevention and long-term patient reported outcome measure development programs.

Objectives: We undertook a detailed epidemiological study of all paediatric orthopaedic injuries presenting via trauma call to the Royal London Hospital, a level 1 paediatric trauma centre, with the aim of defining their incidence, severity, nature and mechanism of injury.

Methods: A retrospective design was used to study orthopaedic injuries associated with all children who came to the hospital via trauma call (air and land) between 2008 and 2013. Details including date of attendance, age, sex, diagnosis and mechanism of injury were collected from the trauma records, electronic health records and radiography. Injuries were classified into the following broad groups; Tibia /Fibula, Femur, Spine, Pelvis Radius/Ulna, Humerus, Foot, Hand, Soft tissue and Other with further sub categorisation.

Results: There were 1100 paediatric trauma calls between 1st May 2008 and 1st June 2013, of which 35% sustained orthopaedic injuries. In total, there were 630 fractures. The relative risk of sustaining an orthopaedic injury was 2.4 in boys compared to girls ($p < 0.001$). The most common mechanisms of injury were pedestrian versus vehicle (35%), major falls (16.4%), bicycle versus motor vehicle (11.6%) and motor vehicle versus motor vehicle (10.3%). 20% of children had two or more orthopaedic injuries, and the most common injuries were tibial and fibular (18.6%), femur (14.9%) and spine (12.2%) fractures, with 8.7% of all fractures being open, reflecting the high energy mechanisms of injury.

Conclusions: Within a 5 year period, over a third of all paediatric trauma calls had associated orthopaedic injury, with significantly more males sustaining fractures compared to females. This study provided insight into the demographics of paediatric orthopaedic trauma, and is the first to do so within a major level one UK children's trauma centre.